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Disclosed is a torque-transmitting coupling assembly and method, as well as flexible surgical reamers having such assemblies. The reamers employ a fitting with radially flexible member, e.g., a split collet or a super-elastic collar that receives an elongated tubular shaft of super-elastic alloy. A compression sleeve is applied to the collet, in one embodiment, while the collar is located within a counter-bore of the fitting in another embodiment. Relative motion between the shaft, fitting and collet (or collar) induces a super-elastic activation in the shaft to form the desired coupling.